LONG RANGE HABITAT PLANNING

— PROCEEDINGS —

Ministry of
Environment
Victoria, B.C.

Wildlife Working Report No. WR-44
March 1990

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LONG RANGE HABITAT PLANNING

Proceedings of a Workshop held
8 November 1988
in
Kamloops, B.C.

M. Fenger and V. Stevens, editors

Wildlife Branch
Ministry of Environment
Victoria, B.C.

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PREFACE

The impetus for the Long Range Habitat Planning Workshop in Kamloops in November, 1988, came out of a workshop on Timber Supply Area (TSA) Planning also held in Kamloops in June, 1987[1]. This was a major workshop for Ministry of Forests (MOF) and Ministry of Environment (MOE) staff. A list of 15 recommendations or action points resulted from this workshop (Appendix A). The only one which has been implemented is the clarification of MOE's role in the TSA planning process including representation on TSA steering committees. A review of chapter 3 of the Forest Service's Planning Manual dealing with TSA planning is currently underway (see #2, Appendix A).

The purpose of this second workshop was to have an internal debate among habitat protection staff within the Ministry of Environment in order to get a consensus on the direction that long range habitat planning should take. In addition this workshop was to address the effect of MOE participation in TSA planning resulting from the 1987 workshop.

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[1]Since the workshop was held the term Timber Supply Area planning has been changed to Resource Management Plans for TSA's. This change has not been made throughout the text. The change indicates formal recognition of other resources at this strategic level.

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Habitat Protection Biologists and staff have participated in a number of habitat planning exercises. Within the Ministry of Environment (MOE) there have been sixteen Strategic Plans completed (see Appendix A) for portions of the province. Most recently ten Regional Wildlife plans have been completed for the province which describe habitats and management strategies.

Most of the Wildlife and Recreational Fisheries Program goals are achieved by integrating into other government Ministry plans such as those required by Ministry of Forests (MOF). These MOF subregion type plans are driven by legislated requirements to control cut (Annual Allowable Cut - AAC) and are based on sub-regional areas called Timber Supply Areas (TSA). In the past, these AAC calculations have been made prior to consideration of the requirements of wildlife or fish for mature timber habitat. Both broad level MOE and MOF plans are flawed in lacking area-based information. MOF is presently proposing to change from single-use volume-based AAC planning to integrated resource management on an area-specific basis (Williams et al. 1988, Williams et al. 1989).

Recently (1987) regional Ministry of Environment staff have become members of Timber Supply Area Committees. This has been beneficial for communicating program goals, however, there is a lack of MOE plans and supporting policy which clearly state habitat objectives at a subregional planning level. This is partly a reflection of the lack of habitat inventory data and planning within Ministry of Environment. TSA committees also have numerous subcommittees which deal with various forestry activities such as range and silviculture, all of which can potentially impact on Wildlife and Fisheries. Due to the inequities in staff levels, MOE cannot be represented on all subcommittee levels, and without a presence, the Environment programs achieve only a low form of integration.

Within the MOF there is a formal process followed for yield analysis in TSA plans, but not for non-timber values. Wildlife and fish habitat requirements, when addressed within the TSA plans, are often seen as a direct timber reduction. The MOF staff and the chief forester are very reluctant to agree to reductions in the AAC under any circumstances. Ergo, to give up timber for habitat means a loss of jobs. There is also a wide variation in procedure between Forest Regions. Similarly, the wildlife and fish habitat requirement are articulated differently in each MOE region. Both allocation (deletion from timber supply) and management (no deletion) scenarios have been put to TSA steering committees for deliberations. To date, the essential task of TSA steering committees has been to establish credibility among the other TSA participants.

Map information has usually been required to show important areas such as riparian zones and winter ranges in order to integrate MOE program goals into TSA plans. Map-

based information such as Environmentally Sensitive Areas (ESA's) on forest cover maps has made integration simpler as these areas are on forest cover maps which form the data base for AAC calculations. Presently, the TSA decision-making process is very cumbersome. There are many steps between Forest regions and Victoria before the AAC is finalized by the Chief Forester. When a general percentage net-down of AAC is granted, it is difficult to measure the degree of integration. When mapped habitat information has been presented the task has been to get the TSA committee agreement on deletions and management alternatives such as extended rotations, reduced block sizes and rate of cut considerations. The degree of integration is much more measureable on area-based volume reductions.

RECOMMENDATIONS

INFORMATION NEEDS

1. Improved habitat inventory and identification of quality habitats and species.

2. Research on habitat requirements, seasonal and limiting factors for important fish and wildlife species.

3. Fish and wildlife habitat maps need to be computer based. The change to Geographic Information System (GIS) by MOF and the future integration will require that MOE prepare inventories and produce plans showing areas and values of habitats required. This will facilitate integrated resource planning such as TSA level plans.

PLANNING NEEDS (MOE)

1. Ministry of Environment needs to prepare plans which state what the habitat objectives are for the fisheries and wildlife programs. These plans need to show where the most valuable habitats are, which species are being managed, and what habitat requirements and conditions are needed to realize the program goals.

2. Ministry of Environment, Wildlife and Fisheries need to produce a formal planning system similar tc the MOF planning framework which clarifies levels of planning and types of information required, who is responsible, and a process for updating and evaluating.

3. Program and MOE committment to updating and evaluating planning products.

4. Revised and clear definition of population objectives based on an analysis of the current availability and condition of habitat.

5. Government endorsement of the revised population objectives and the habitat required to support them.

PLANNING NEEDS (MOF)

1. Ministry of Forests needs a better planning model in which non-timber values are formally considered. This model needs to be sufficiently responsive to generate options based on areas and strategies from MOE plans. Such a proposal has been presented by Williams et al. 1988 and 1989 and is strongly supported by MOE. This should be a formal process.

2. A direct link is required between TSA plans and operational plans so that high level committments are realized operationally. Also, provincial Annual Allowable Cut (AAC) needs to be based on TSA analyses that have taken into account all resource needs for areas of timber.

3. A reporting on monitoring and compliance with conditions in existing TSA plans is required at plan update intervals.

4. Detailed land-use plans should be completed in high value areas as identified in the TSA plans, with emphasis on retaining habitat values,i.e.,Mule Deer Winter Range plans.

INTEGRATED PLANNING PROCESS NEEDS

1. Consistent boundaries of planning units would simplify multi- ministry long-range planning.

2. The TSA steering committees should be restructured to deal with planning and integration of wildlife and fisheries concerns separately from other forestry issues. The forest industry should not be represented in the planning portion as they are a vested interest group. Once some initial options have been developed vested interest groups should have the opportunity to review and suggest changes.

3. Improved communications of TSA planning procedures as outlined in the MOF planning manuals would lead to a more consistent approach to TSA plans between the various Forest Regions. This was also a recommendation of the Planning Phases Working Group, 1989.

4. Improved communications of Environmental planning processes to MOF.

5. Involvement of Ministryof Environment at the earliest portion in the planning process is necessary for complete integration of plans.

6. Involvement of MOF in plans.

7. Public involvement is needed in the broad sub-regional planning process.

8. Identification of common priority areas for planning.

9. Ministry of Environment needs to develop a planning process to generate habitat objectives and requirements in support of population objectives. Executive approval or revision of population and habitat objectives would be part of this process.

10. A less cumbersome process is needed to finalize AAC (see Beets, this publication, for present 12-step process).

11. Operational guidelines are necessary to communicate habitat requirements.

OTHER NEEDS

1. There is a need to develop policy and/or legislation in support of habitat objectives. This should be linked to the program goals and ensure habitat diversity and no net capability loss on important and critical habitat for rare and endangered species and species of management concern.

2. A need for riparian research and strategy on how to manage these important habitats was specifically identified.

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INTRODUCTION

O. R. Travers
(Habitat Management Section, Recreational Fisheries, Victoria)

The stated objective of the planning workshop is to develop an improved strategy for fish and wildlife habitat management through participation in the interagency planning process. Regional habitat protection staff will clarify their involvement in TSA planning and provide an evaluation of the process. In order to formulate a new strategy it is necessary to know what has worked, what has not worked and why from the collective regional experience.

TSA planning is one level of planning in a hierarchy of MOF planning procedures. The MOF planning framework shows how the TSA planning fits into the whole planning hierarchy.

To focus the discussion, prior to the workshop each regional participant was provided with the following questions:

1. What has been the Ministry of Environment (MOE) role in interagency planning Committees (e.g. TSAs)?

2. Has the planning followed a formal process (e.g. Chapter 3 of the Resource Planning Manual)?

3. What habitat issues were addressed?

4. What information was required? In what form was it presented?

5. Was integration achieved?

6. How will decisions be implemented and monitored?

7. Are there other important problems which must be addressed?

8. What recommendations are needed to make the process work better?

The summary of answers to these is in the executive summary.

WILDLIFE PROGRAM PLANNING: AN OVERVIEW

Lynn Bailey
Planning Officer, Policy and Planning Division, MOE
Nancy Wilkin
Planner, Wildlife Branch, MOE

[Editor's note: This section was included to address the planning functions internal to the Ministry of Environment and the Wildlife Planning exercise. L. Bailey was unable to attend the workshop but prepared this section. Nancy Wilkin presented an abbreviated summary of MOE levels of planning at the workshop.]

INTRODUCTION

The Wildlife Program develops a number of planning products, reflecting a hierarchy that ranges from providing a provincial policy orientation to site-specific management prescriptions (Figure 1). Each of the current and proposed products is described below.

PROVINCIAL PRODUCTS

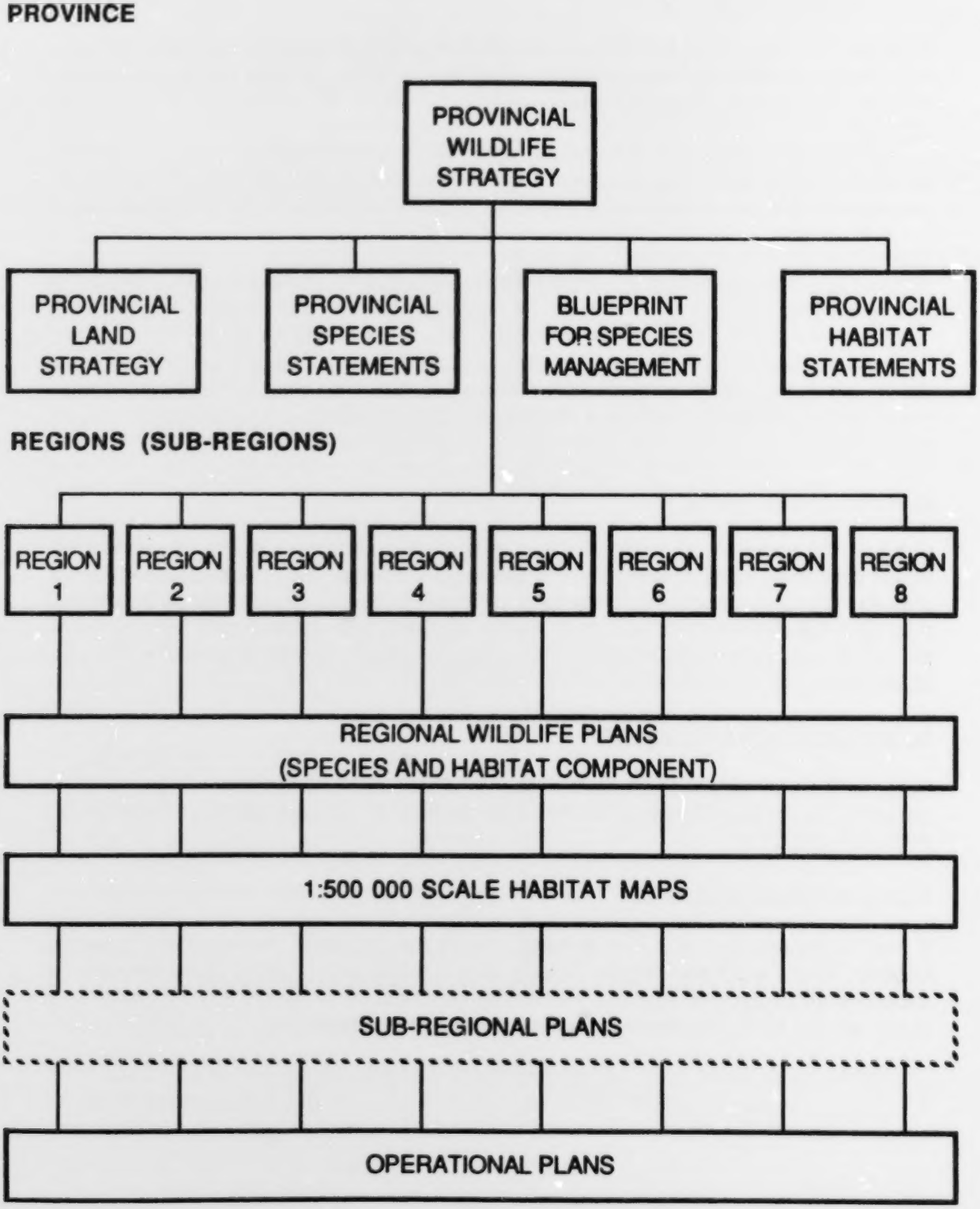
At the provincial level, three planning products are in preparation and two more are possible.

Provincial Wildlife Strategy (PWS)

Purpose: To identify, for public review and comment and government approval, a strategy for management of the wildlife resource to the year 2000. The document will contain information on the legislative and policy framework for the Program; current status, uses and values of wildlife species and/or habitats; major challenges facing the Program; and how the Program proposes to address these challenges over the next decade.

The PWS would provide the public, other resource agencies and industries an opportunity to comment on the overall direction of management. The resulting action plan will be used to guide Program budgeting.

WILDLIFE PLANNING PRODUCTS



Provincial Species Statements (PSS)

Purpose: To inform the public of the proposed management of wildlife species of management concern and/or highest public demand. A total of 29 documents are being prepared for individual species or species groups.

The PSS will reflect current knowledge of species biology, habitat, present numbers, population status and public demands. They will also identify current management issues and opportunities, and indicate how a species or species group should be managed over the next decade.

Management objectives will be established, typically stated as a target number of animals by a given year.

A major benefit of the PSS is that species and habitat management strategies are being developed for ecological, rather than administrative units. The main limitation of the documents is that population estimates and targets are not tied closely to habitat availability and condition.

Provincial Land Strategy

Purpose: To adopt a comprehensive and defensible approach to land management activities for wildife. The Provincial Land Strategy is an internal, policy document which provides direction for influencing the land and water use practices of other parties, where they significantly affect wildlife and its habitat; securing appropriate forms for land tenure for wildlife; and enhancing, restoring and maintaining land to assist in achieving Program objectives.

Blueprint for Species Management

Purpose: To summarize the information from the Provincial Species Statements in a single document. A decision regarding the need for this product will be made after the PWS and PSS are completed.

Provincial Habitat Statements

It may be desirable to produce a document on the proposed management of wildlife habitats. Such a product would include supply information (distribution, abundance, capability and suitability) and use information (importance to wildlife species, other land uses), as well as management objectives, strategies and activities.

REGIONAL PRODUCTS

Planning products at the regional level encompass a wide range of detail, from the most general Regional Wildlife Plans (approximate map scale of 1:500 000) to site-specific operational plans (map scale of 1:5000 to 1:50 000).

Regional Wildlife Plans (RWP)

Purpose: To provide direction to wildlife management activities in each administrative region and sub-region by establishing priorities that are consistent with a provincial strategy. The RWP contain sections on biophysical characteristics of a region, important management issues, wildlife species, wildlife habitats, and management priorities.

The regional species statements provide updated supply and use estimates and establish management objectives, strategies and priority activities for wildlife species and species groups, based on an analysis of supply and use. Major limitations to the analysis stem from inadequate levels of inventory, both habitat and population, and research information. Population objectives are not typically based on habitat availability and condition.

The regional habitat statements provide standard provincial definitions of habitat, based on broad ecological units. For each habitat, use by wildlfe species and impacts are described and management strategies and priority activities are established. Limitations to habitat statements include inadequate inventory information, no link to current and target wildlife populations, and difficulty in relating habitat strategies and activities to a map base.

Regional Wildlife Habitat Maps at a scale of 1:500 000

Associated with the regional Wildlife Plans are habitat maps which show eco-province, eco-region, eco-section, and biogeoclimatic zone and sub-zone boundaries. The map legends describe important habitat types used by wildlife species in biogeoclimatic zones and sub-zones within each eco-section.

Sub-regional Plans

Sub-regional plans (see Hamilton, Fuhr and Kot, this publication) are prepared when there are:

1. significant or developing supply/use problems necessitating either enhancement of supply or restrictions on use,

2. significant interactions between Ministry of Environment programs requiring a coordinated plan, and/or

3. demands from external processes which require the Program to formulate environmental management objectives and strategies at the same level of planning as the outside agency(e.g.,TSA plans, TFL plans).

The sub-regional planning level is the most appropriate for investigating habitat options for increasing wildlife supply through the protection and manipulation of habitat. It requires the availability of mapped habitat inventory information.

Operational Plans

Operational plans are the outcome of sub-regional and/or regional plans. Detailed management activities designed to implement the regional and sub-regional objectives are identified.

In summary, three major planning products are currently being produced by the wildlife program.

1. Regional Wildlife Plans which include detailed species statements, habitat statements and regional priorities.

2. Provincial Species Plans for 29 species or species groups which will provide a provincial "blueprint" for species management. Draft plans are due March 31, 1989.

3. Provincial Wildlife Strategy which will be a public document outlining the status of wildlife in B.C. and the wildlife program's Action Plan to the year 2000.

Following the completion of these three major planning initiatives, work will begin on the relationship between the regional species population projections and the quantification of available habitat, and the impact of these requirements to meet our programs' recreational and ecological demands.

The Recreational Fisheries program completed regional plans in 1983-84. These plans are based on an analysis of supply and use information for the major sportfish species. They do not include a habitat component. The program intends to revise the regional plans in 1990-91, and is investigating developing a habitat section for them. A pilot habitat project was completed to develop appropriate planning unit boundaries for Vancouver Island in 1987.

A Provincial Fisheries plan, or corporate plan, is in draft form. Most of the sixteen Ministry strategic or sub-regional plans include a fisheries section.

WILLIAMS LAKE TSA

Marty Beets
(Habitat Biologist, Williams Lake)

Here are the answers to some of the questions sent out prior to this workshop.

1. What is the value of TSA plans and what strategy is used in dealing with them.

The referral system has been in effect since 1969 in the Cariboo. Since that time we have been involved in a number of different planning systems including folios, Deferred Planning Areas (DPA's), Land Use, and Coordinated Resource Management Plans (CRMP). All of them dealt with decisions that were already made when the Annual Allowable Cut (AAC) was set. We have realized that we must get a realistic AAC or none of our approaches to TSA planning mean anything. The main decision and focus of TSA planning is on answering the question, **How much is cut each year**? One of the most important planning exercises we can deal with is setting the AAC. Our strategy is to put a great deal of time and effort into preparing habitat information and maps which show wildlife habitat requirements.

2. What are the issues and how are they identified?

The issues are simple. They are a) where logging occurs, b) how much logging will there be, and 3) economics (jobs). How much logging there will be is set by the AAC which is a long-term planning decision. Determining where the logging occurs is a short term (20 year) decision. At present, the AAC is set without much concern for other users. Therefore, anything we ask for is perceived as taking away from jobs, timber supply, etc.

At first, a big issue was just getting representatives of fish and wildlife on the TSA committees and developing their trust in us. Now, a primary issue is education. The forest industry must be made aware of the consequences of **not** considering fish and wildlife.

3. What do you provide at the TSA planning meetings or through the TSA planning process?

There are two ways of approaching habitat protection at the TSA planning level. One is to ask for a percentage of the cut volume as a reduction for wildlife. The other is to be site- or area- specific and use map-based information. In the past the percent of the volume approach has never worked in the Williams Lake region because there was no way to analyse our needs and we had to keep fighting the same battles for each referral. We decided we had to be site-or area-specific and use map-based information. We focused on habitat requirements for mule deer and caribou. The present MOF objective is the removal of old-

growth timber and when comparing their timber objectives (AAC) with the habitat requirements of wildlife we had major concerns. MOF is concerned with fiber rather than tree age and once the old-growth is cut, we will never get it back.

In the Williams Lake area we have two big game species that require old-growth. They are caribou and mule deer. In most cases, the needs of other species can be handled by maintaining habitat diversity if we have a wildlife habitat plan to help us. Fish are more of a problem. We do not have a regional fish habitat plan so we can not key in on site-specific issues as well.

When we looked at the big picture, old-growth appeared to be the major issue. This was identified on a map by TSA cells. By this means we identified areas of concern, explained why, and pointed out what we want. This, too, was presented in map form summarized in a report (MOE 1988). We also attended every TSA Committee meeting, sometimes as often as twice a week.

4. What method of analysis is used by the Ministry of Forests? How is your information integrated?

The MOF uses the Multiple Use Sustained Yield Calculations (MUSYC) model which is run in Victoria. The MUSYC model gives a readout of percent of AAC offered under various options. Our habitat maps showing site-specific areas are connected to volumes and our habitat requirements are presented as an option.

5. What is the effect of fish and wildlife input on TSA plan AAC? What is the effect of range and recreation input?

There was a consensus by the Williams Lake TSA steering committee that 6 1/2 % of the present AAC is needed for mule deer and caribou. The range contribution to the steering committee dealt with range improvements and animal unit months (AUM's). The Recreation input to the steering committee didn't deal with much of anything,i.e.,no wilderness issue mentioned.

6. Is integrated management being achieved?

On the site-specific areas identified on maps integrated management will probably work if the Steering Committee recommendations are accepted and the AAC reduced. When a percentage volume reduction is asked for but no specifics are indicated, we don't know if integration is achieved. The sequence we are following to achieve integration is as follows:

1. inventory of habitat and evaluation of its value to the wildlife program.

2. participation on TSA working committee

3. participation on TSA steering committee. This committee makes decisions and recommendations

4. preferred options go to regional manager

5. options report written

6. options report sent to chief forester - may be discussed with the Minister of Forests

7. options report is returned to MOF regional manager

8. options report is made public

9. options report and public input goes back to regional manager

10. TSA steering committee recommends the best options

11. selected options go back to regional manager

12. chief forester makes the final decision

7. What do you want to see changed in the next TSA planning exercise?

We would like to see the following things changed for the next TSA planning session:

1. Increased habitat inventory.

2. Fish and wildlife involved from the beginning of the planning process.

3. Area or map-based fisheries information available.

4. Completion of the Mule Deer Winter Range Plans.

5. Research or management decisions on Caribou habitat.

6. More help from Victoria in developing provincial policy and procedures on MOE role in TSA planning.

THE TSA PROCESS

Herb Langin
(Wildlife Biologist, Williams Lake)

It is clear that to have any impact during the TSA planning process, the Wildlife Branch must have data available to support any request for reduced timber harvests. Both mule deer and caribou are old-growth dependent species. In the planning process we use some primitive but useful mule deer maps (1:50 000 forest cover and topographic information) which allow us to set priorities. For caribou, we have emphasized the need for contiguous mountaintop blocks. Wolves are currently believed to be limiting this population. Unlogged habitat is required for caribou to avoid predation and to allow the population to expand. Mule deer and caribou research were important in supporting these requests and in developing priorities.

Educating the TSA technical committee on wildlife related issues is one of the most important and time consuming tasks we have. Wildlife has become a very important issue in the Williams Lake TSA.

There are some major gaps in MOF data. In fact, their calculations show the possibility of an increase in the AAC. The chief forester may have difficulty accepting this increase as being realistic.

Economics is a critical issue, but we have to be careful about the figures presented by MOF. Their figures, for example, were based on the assumption that wages were a cost rather than a benefit. Timber values are in the order of $25.00 per m^3 not $200 per m^3. When Roger Reid (Wildlife Branch economist) revised their estimates he found that timber and mule deer values were in the same order of magnitude although timber was higher. [Editor's Note: There is an agreement between MOF and MOE to use a standard cost benefit analysis.] If other recreational and wildlife values were added, the values would be even closer.

If we had to do it over again, an early agreement or discussions on the allowable wildlife impact on the AAC would greatly speed up the negotiating process. It is difficult to specify a fixed level for our needs. When pressed about how much old-growth a particular species needs, our initial response may be "the rnore the better" however, it is important to get beyond this point and provide input to the process which allows for reasonable negotiations.

KOOTENAY TSA

Al Soobotin
(Habitat Biologist, Nelson)

There are 6 TSA's and 5 TFL's in the Kootenay Region. Rather than participate on 11 steering committees, a single set of guidelines for habitat management has been developed to facilitate input into strategic planning in connection with Resource Management Plans. These guidelines were developed for each habitat class described in the Regional Wildlife Plan where wildlife use is influenced by forest cover (see Fenger and Stevens 1989, for a discussion of these guidelines). Guidelines were developed on the basis of defining forest cover in terms of tree height and crown closure and describing the area and distribution of forest cover required by featured wildlife species. The retention of 10% old-growth forests in each Biogeoclimatic subzone/variant was also recommended. Additionally, for each habitat class, mapping criteria were provided in terms of slopes, aspects and Biogeoclimatic subzone/variant to enable MOF and forest licensees to map and quantify habitat classes. The onus for calculating habitat requirements and the effect on AAC has been transferred to MOF and the licensees.

We intend to expand these guidelines to incorporate operational parameters, such as size and location of cutovers, in order to aid forest licensees in developing suitable logging plans.

THE GOLDEN AND INVERMERE TSAs

Dennis Hamilton
(Habitat Protection Biologist, Invermere)

1. The role of MOE in planning committees.

MOE has served on the TSA steering committee for the development of 5-year plans. They have also served on analysis subcommittees and have had key roles in the development of Coordinated Access Management Plans (CAMP), and the Rocky Mountain Trench Integrated Renewable Resource Management Plan (TIRRMP).

2. Has planning followed a formal process?

Although there is a formal process in place for TSA Planning and Analysis as it relates to timber volumes, species etc., there is **no** process to recognize non-timber resources such as wildlife and fish habitat requirements. Further, the habitat issues within each district may be the same(i.e, forest ungulate cover requirements, riparian habitats) but resolution of those issues may vary within each TSA. As a result, we have had to develop our own methods and procedures to evaluate fish and wildlife habitat issues within each TSA. [Editor's note: MOF is in the initial stages of developing a Geographic Information System (GIS) capable of dealing with non-timber resources (Williams et al. 1988).]

3. What habitat issues were addressed?

In both the Golden and Invermere TSA the following 3 issues were discussed: a) second pass harvesting with respect to maintenance of forest cover requirements for hiding and snow interception, b) riparian habitat management and c) old-growth forest management. In addition, in the Invermere TSA an issue was forest encroachment or ingrowth on ungulate winter ranges.

4. How will decisions be implemented?

The decisions of the TSA committee will be implemented in the 5-year plan and at the cutting permit level. However, the industry is not monitored and may not follow through or even be aware of the recommendations of the committee.

5. Important problems which must be addressed.

Riparian research: The implications of forest management activities within riparian ecosystems upon fish and wildlife resources requires research. We are continually altering this most important habitat class through forest harvesting with essentially no idea of

the implications of such practices upon the resources most affected - the wildlife and the fish. As a result a "band-aid" solution of "hands-off" to riparian habitat alteration has been adapted by MOE in the Kootenays; however, this is unacceptable to MOF and industry without research backing.

We need to know what the short-term effects of increased cut delays will be on the AAC. These delays are for winter habitat (40-year delay for thermal cover), old-growth, riparian areas and hiding cover.

6. Recommendations to make the process work better.

a) better wildlife and fish inventory and habitat requirement information and a better understanding of these by the MOF staff,

b) consistent boundaries with MOF,

c) a model which better incorporates other research considerations,

d) ensure a link between the strategic plan and the (TSA) operational planning levels,

e) increased public involvement,

f) monitoring both of the plan and of the anticipated results,

g) MOE needs policies to support important issues in TSA planning. Policies are needed in areas such as habitat diversity, old-growth, and riparian management.

h) we need to define the link between fish and wildlife objectives and habitat planning.

OKANAGAN TSA

Dave Jones
(Habitat Biologist, Penticton)

The Resource Committee dealing with the Okanagan TSA consists of representatives from MOF, MOE, Department of Fisheries and Oceans (DFO) and three forest licensees. This committee produced operational guidelines (see Fenger and Stevens for a discussion of these guidelines). Unfortunately these guidelines were not completed in time for the Okanagan TSA reanalysis. The following habitat issues were addressed in the guidelines:

-rate of cut

-wildlife species which require mature forest

-% of mature cover in each planning cell

-riparian management zones(RMZ)

-harvest prescription for RMZ -lakeshore zones

-cut block size, shape and pattern

-sequence and timing of harvest

-wildlife trees

-swamp complexes

MOF managers are currently reviewing the guidelines with the intention of adopting the guidelines for a one-year trial period. It is our intention to use these operational guidelines during the next TSA reanalysis. [Editor's note: The Okanagan Guidelines have been endorsed by the MOF Forests, May 1989.]

TSA PLANNING

Phil Holman
(Habitat Protection, Kamloops)

Lillooet TSA

This TSA is predominantly very dry and very steep with large dry belt fir deer winter ranges and very limited moose winter ranges. Bighorn sheep, mountain goats, and grizzly bears are only affected strongly by roads and access more than by cut blocks. Forest data for this plan were very poor and there was no breakdown into planning cells. Yield analysis is to be redone presently (using planning cells). Since the data available were so hard to interpret, habitat input was limited to the following:

1. Reinforcing a reasonably complete Environmentally Sensitive Area (ESA) constraint program to protect a majority of deer winter ranges on environmentally sensitive (Es) sites. [Es sites are indicated as a class on forest cover maps.]

2. Ensuring accessibility, utilization, and problem forest factors really did resemble present reality.

The above interaction resulted in reductions of 2-5% on Long Run Sustained Yield (LRSY) in the status quo option.

We reviewed the final Options Report, confirmed our earlier input, and recommended the integrated-use scenarios listed for the Spruce Lake and Stein areas.

The status quo option reduced the AAC by 33%, but the Chief Forester approved an AAC only 19% lower assuming intensive silviculture could compensate for the missing 14% of status quo decrease.

Reanalysis is beginning for this TSA and will use better forest data.

Okanagan TSA

This TSA contains dry to wet forest with part of the TSA in the area administered by MOF from Penticton and part administered from Kamloops. The Okanagan TSA Guidelines mentioned by D. Jones are to affect licensees' 20-year supply. The intent of those guidelines was to apply also to the Long Run Sustained Yield. The Okanagan TSA Guidelines did not deal with mountain caribou range and MOF has been asked to calculate the impact of two

levels of range management on mapped caribou range; however, this work has not affected the AAC.

A forest area (several planning cells) with the highest caribou values may require up to 6% of productive land base to maintain habitat. Not having all necessary data we suspect that for 1/7 of the planning cells in the Kamloops portion of theOkanagan TSA something like 3% of productive land base will be needed to maintain caribou habitat. Although these percentages are estimates it is unlikely that a better answer will be available for several years.

A habitat availability exercise was done under Ministry of Forests' guidance. This exercise indicated that within a 20-year planning horizon, timber availability would have to be reduced by 3% to account for fish/wildlife habitat requirements. No calculations have been done to see what this restraint would be on the long term AAC.

100 MILE TSA

This area has real problems with a recently elevated AAC resulting from mountain pine beetle salvage. The salvage is having significant impact on major moose winter ranges (with an accent upon riparian associations).

Habitat staff at Williams Lake and Kamloops have mapped deer winter ranges to derive old-growth and cover requirements.Both deferrals and reserves should result. Kamloops also mapped key moose winter ranges and required shelter deferrals which in some areas might become reserves (AAC effected).

In September 1988, negotiations with the TSA Committee were aimed at determining a net land base reduction based on the need for old-growth shelter for deer. The old-growth need varies with snowfall zone. Presumably this will result in a net land base reduction for forestry and this will be translated into an AAC reduction. Caribou (Williams Lake office concern) will also affect AAC. Moose habitat maintenance has been agreed to as a harvest scheduling problem, a solution I am not secure with because of the mountain pine beetle cut-overs.

The 100 Mile TSA process has been the most satisfying to date because it is based on lines on forest cover mapping,not on tables covering a planning cell or compartment. Even if the AAC is not reduced by the Chief Forester the MOE will still have site-specific mapped information upon which to base 5-year plan comments and prepare for a new analysis.

The recent sale of 350 000 m^3 of "pulpwood" for oriented strand board may strongly affect moose, furbearers and many lower profile wildlife species. This volume comes from outside the current AAC.

KAMLOOPS TSA

Because of MOE time and staff constraints only caribou options are presented for this TSA analysis. Using mapped information at a scale of 1:50 000, critical range has been defined, totally netted out, then analysed to simulate a 250-year rotation [1/3 of the area harvested every eighty years] as the limit on rate of harvest of old-growth. The Forest companies conceded that, in addition to canopy closure class 3 [30% crown closure] netted out in the regular TSA analysis, canopy closure class 4 [40% crown closure] in this specific area was not economic in 20-year availability. This viewpoint minimized the impact on the companies of the 1/3 harvest every 80 years. The MOF still indicates that areas with 40% crown closure should be harvested. The affected area will be labelled an Environmentally Sensitive Area (ESA) (high constraint) on digital forest cover.

Like the other TSA analyses in which we participated, there was not staff time to review the Environmentally Protected Areas (EPA) later called ESA's mapped in the late 1970's. The rules used to designate ESA's vary between the old Public Sustained Yield Units within the TSA. Throughout most of our region, Environmentally Sensitive Areas for Wildlife (Ew's) are incomplete and can not be taken by users (MOE or MOF) as site-specific map information. The percentage netted down due to Ew is useful in reducing the AAC, but the specific areas mapped may not be those most in need of protection.

PROCEDURES

1. Write up the thorniest list of issues possible including comment on the quality of ESAs, known reductions in land base for single uses(e.g. Wildlife Management Areas[WMA's]), concept problems such as rate of cut, high profile issues like caribou winter range conflict, range and wildlife problems, and impacts of timber harvesting on watersheds.

2. Help convert the above issues into a scenario or scenarios if necessary to present the data to the MOF staff.

3. Interact with regional MOF planning staff in the design and appropriateness of the 15 or 16 data tables used in the options report. Discussion on these tables has a significant impact on availability of wood. The tables must represent status quo standards of practise and not a hypothetical (overoptimistic) view of available volume.

4. Review all the interim reports and information reports.

5. Map critical ranges and create continuous mature cover requirements. Ask for digitized information from MOF as to the impact on 20-year habitat availability resulting from proposed constraints. Readjust if unreasonable.

Note: I have been uncertain how the following will provide wildlife habitat: ESA's, problem forest reductions, non-forest reductions, deciduous types, etc. (which get netted down). How much habitat will come from deferrals and reserves of merchantable types. Cell summaries or winter range polygon summaries are the only way to check on this factor.

6. Remain involved at the TSA level during critical stages of negotiations of your preferred option.

7. See what happens next including being prepared to write major rebuttal letters to the Chief Forester on Options Report.

VANCOUVER ISLAND REGION

Ian McDougall
(Habitat Technician, Nanaimo)

1. What has been the MOE role in interagency TSA planning Committees?

We have provided discussion about the Coastal Fisheries/Forestry (CFF) Guidelines, the forthcoming Integrated Wildlife Intensive Forestry Research (IWIFR) Handbook and Habitat Capability Mapping. We have provided maps showing two classifications of environmentally sensitive areas for wildlife (EW1's and EW2's) but no polygon-specific area summaries have yet been calculated by the MOF. In addition, we attend 2 meetings per TSA each year.

2. What habitat issues were addressed?

The following issues are receiving preliminary identification as important management issues:

-cut-block size options

-cut/leave patterning strategies

-visual cover green-up requirements

-forage production areas

-site rehabilitation

-short-term winter range or forage block deferrals vs. long- term winter range exclusions

-hydrological green-up considerations

-wildlife tree management deferrals

-short-term chart area liquidation impacts

-wildlife diversity needs

-riparian management

So far, these issues have not been incorporated because the opportunity has not been provided. However, now that they have been identified, the Vancouver Forest Region does plan to incorporate such issues in the next TSA planning go-around.

3. What information was required and in what form was it presented?

ESA's have been redigitized for total area only and deleted from the land base. This is protection in a crude sense but full GIS mapping is necessary. At least the first go-around maps show the ESA designations which are available to Forest District Offices.

4. Was integration achieved?

Integrated management is being achieved in the simple sense. What is lacking is the integration of second-growth management options to offset some of the old-growth deferrals in the shallow and moderate snow zones.

5. What is the value of TSA plans?

To date they have protected specific areas by reduction of the land base for fisheries and wildlife concerns. TSA plans have so far failed to address watershed, TSA planning-cell, or compartment management which have been addressed separately through Local Resource Use Plans (LRUP's) or routine 5-year development plans. These linkages between TSA and lower level plans need to be developed.

6. What recommendations are needed to make the process work better?

We need fisheries and wildlife computer-based maps. Our salvation will be to have GIS-based (including TRIM) 1:20 000 TSA maps by the end of the next TSA planning go-around (1994).

7. Recent TSA Meeting Discussions have focused on:

-Herbicides, rehabilitation sites and public pressure for better integrated resource management

-Helicopter logging as old-growth timber supply becomes confined to less accessible and steep terrain

-Forest license extension proposals and impact on small business

-Site degradation due to grapple yarding landings and roads

-FRDA silviculture 5-year plans

-TSA timber supply analysis information reports

-Cruise data versus inventory data

-Woodlot program Ministry of Forests selection procedures

-TSA re-inventory

-Discovery hardwoods alder forest license

-If TFL's are replacing TSA's, what affect will this have on TSA planning?

-Parks, public awareness, wilderness and National Forest week

-Forest license management and working plans

-Letters of understanding

-B.C. Hydro right-of-way expansion

-recreation needs

8. Summary of habitat's needs for the next TSA go-around:

-1:20 000 GIS-based timber and non-timber information

-Regional wildlife/habitat plans with operational guidelines for habitat classes

-TSA and TFL (GIS-based) summary maps showing land tenure, wildlife/fisheries long-term deferrals, habitat capability mapping

-Greater input to TSA options report

-20-year TSA planning to address issues

-More site-specific, watershed-based planning cell managment

-Accessible versus inaccessible operability lines at the planning cell level

NECHAKO SUB-REGIONAL WILDLIFE MANAGEMENT PLAN

Brian Fuhr
(Habitat Biologist, Smithers)
Ron Kot
(Research, Planning and Assessment Branch, Victoria)

The Nechako Plan is a sub-regional level plan aimed at addressing agricultural/forestry/wildlife interactions. The scale being tested for this type of planning is 1:100 000. The approach involves developing a land model that defines habitat and constraint factors, then, using habitat carrying capacity ratings for various species, consequent study area carrying capacity is determined. To handle spatial data, Geographic Information System (GIS) capabilities are utilized.

The approach allows firstly, the setting of wildlife management objectives rationalized to present land base carrying capacity and present and forecasted use (demand). Secondly, the basis is provided to tie the effects of habitat manipulations by other agencies, as well as ourselves, to wildlife production levels and values (consumptive and non-consumptive).

The method is currently a "featured species" model as only moose, elk, deer and pine marten are addressed. Note however that habitat maintenance objectives, to reflect species diversity objectives, may be incorporated later. An integral part of the model is a map of habitat types and successional stages at a scale of 1:100 000. The map is being developed from topography, soils, Landsat images and current forest cover maps.

Currently we are working on two models. The agricultural model is a simple one overlaying land use tenure and habitat maps (Bulkley plan) [Editor's note: The Bulkley report is complete. It predates the Nechako but deals primarily with agriculture alienation (MOE 1989).]. This model will show carrying capacity impacts due to the permanent conversion of wildlife habitat to agricultural uses. The forestry model is more complicated and one objective is to show the effect of clearcut size and green-up prescriptions on carrying capacity. The Ministry of Environment preferences for cutblock size and green-up appear in the Prince George TSA plan, but these preferences need to be supported by a plan. The plan is looking at the 40/41 rule -- 40% of the productive area within each planning cell will be retained in forest cover older than 41 years. Habitat mapping provides a means of rationalizing and refining guidelines such as the 40/41 rule.

The TSA planning horizon of 20 years is not long enough to address wildlife habitat diversity objectives. The Ministry of Forests is committed to using a cut/leave model for integrated planning. The Nechako forestry model is aimed at showing the effects of the MOF policies on wildlife carrying capacities.

CAN BETTER PLANNING HELP US DEAL WITH ALL THE CHANGES IN FOREST POLICY?

Glen Carlson (Habitat Technician, Surrey)

Better planning is our best option! There have been some improvements in TSA planning which have resulted from our recent membership on TSA steering committees. In TSA planning, there is a need within our own organization to coordinate and summarize the various Fish and Wildlife habitat planning systems that have been used, the errors made, and how to correct previous mistakes. TSA planning in the Lower Mainland has been to take what has previously been done in Region and to apply it on three TSA's with some modifications each time. Unfortunately, we have had very little benefit from what had been done in TSA planning in other regions.

We need some policy coordination between MOE and MOF in Victoria. At the regional level it seems as if we are always trying to catch up. For example, just as things become clear on TSA planning, current TSA yield analyses are held up pending what happens with the possible conversions to of FL's to TFL's. These days the MOF seems to be operating very haphazardly. This has obviously affected our ability to cope with all the changes, particularly with reference to Letters of Understanding. Yet, between what Habitat Protection in Victoria developed and the Vancouver Island experience, region II has some good foundations to work from.

Stronger habitat legislation would help insure that our fish and wildlife resources are better protected. The Environmental Management Act (EMA) needs greater application of the Wildlife Act. The Conservation Officer Service (COS) could also help in monitoring the new LOU agreements for TFL's and FL's.

It is imperative that fish and wildlife work as a coordinated unit within the whole province, at both the regional and headquarters levels, in order to deal with all the MOF changes. We could all benefit greatly from the experiences of the other regions.

Brian Churchill (Habitat Biologist, Fort St. John)

As the northern most representative here I have a different perspective on these issues. The habitat section was created in 1973. That was 15 years ago and our needs are just being identified. In the meantime, the province is in the process of selling off our overcommitted forest resource. As an example, there is now a deciduous harvest in the north and five new pulp mills in the Peace region.

The policy of Mr. Dalon, the Assistant Deputy Minister, to "lead from the regions" is not happening. We have got to identify the critical issues and the strategical issues. A major boost would be a mandate for habitat diversity from Victoria.

[Editor's note: A second draft of a habitat diversity policy has been prepared.]

The best place to start to design a program to get the north regions started is with small projects. Habitat Protection's role is to make sure the regions know about their resources and keep letting them know. We do not want more policies, we want protocol!

Range has not been, but should be participating in TSA planning. The public should also be given the chance to participate more actively. Recently five deciduous cutting licenses were made available before the public hearings were held.

Dave King (Habitat Biologist, Prince George)

The Prince George TSA was completed 4 years ago and is being used for a model of TSA planning. They are using the 40/41 rule described by Brian Fuhr in this report. The TSA plan is up for redoing next year, but it will probably be delayed due to the conversion to TFL's.

The MacKenzie TSA is the largest TSA in the province. Fletcher Challenge is applying for a TFL for the whole area. They did no new work on the TSA. The timber analysis was done using 20-year old data which was updated. Their application states that the reanalysis shows a possible 3 million m^3/year could be cut. This would be overcutting the AAC. Fletcher Challenge proposes to cut the height class II forest which in this northern area is largely age class 8. [N.B. The Fletcher Challenge application has been tabled indefinitely.]

The McBride TSA has posed no problems yet. It has some surplus allowable cut which has been put out for bids.

ROCKY MOUNTAIN TRENCH INTEGRATED RENEWABLE RESOURCE MANAGEMENT PLAN (TIRRMP)

Dennis Hamilton
(Habitat Protection Biologist, Invermere)

The TIRRMP has divided the area from Radium Hot Springs to Cranbrook into 500 polygons. There are 85 attributes which are considered for each polygon and which lead to different management scenarios. The plan rates the forest, range and wildlife resources for each polygon based on capability of the site to produce one or more of the identified resources. Based on the capability of the site, management priority is given to those resources best suited to the site.

The TIRRMP plan was politically motivated to mediate the long standing conflict between range, timber and wildlife. There was no industry involvement.

The TIRRMP has been used to identify areas where Christmas Tree Permits (CTP's) are in conflict with wildlife capability ratings. Facts about CTP's are:

1. the sites are usually poor capability forest sites but possess high to extremely high ungulate capabilities.

2. the nature of CTP management negates the use of prescribed burns thereby further reducing the ungulate carrying capacity of the site.

3. CTP's generate revenues to MOF well in excess of the capability of the site as a forest products (i.e., timber) producer.

OPEN DISCUSSION

1. A discussion of the division of habitat protection and wildlife functions within regional offices raised a lot of questions:

What is the mandate of habitat protection staff?

Are habitat values primary or secondary? Do we manage for habitat or for wildlife?

If there is enough habitat for ungulates, will the other wildlife species be taken care of, or do we manage for all species (or all habitats)?

2. Objectives of the habitat management sections and the division between Recreational Fisheries and Wildlife Branches in Victoria.

The classical objectives are to write provincial goals about featured species. New goals and objectives are needed. Some participants felt the need to have habitat objectives to manage habitat for its own sake. We need an increased concern for the habitat of non-consumptive wildlife rather than giving all our attention to "market" uses of wildlife. We need to plan in concert with MOF.

3. Diversity is a topic that needs discussion. It is fairly apparent that the public is on the side of maintaining or even increasing habitat diversity. Among the most important components of diversity is old-growth. The importance of coarse woody debris on land as well as in streams has been shown. What sort of diversity are we after? Do we want habitat diversity within major biophysical zones, within some smaller area, or within the province as a whole? Will managing for featured species assure diversity because of its umbrella effect, or will it have a detrimental effect on biological diversity?

4. Action steps for better strategy.

-review regional wildlife plans including a summary of habitats

-review MOF planning manual's new chapter on TSA planning

-define staff roles, time commitments, money, etc.

-identify habitats -- how much? in what condition? for what purpose?

-if we can't do the above for the whole region and all the species, choose the species of management concern

-concentrate on certain ecoregions and biogeoclimatic zones

-identify diversity issues and what sort of policy would be appropriate for old-growth

-involve wildlife in interagency planning exercises

REFERENCES

Fenger, M., and V. Stevens (eds.) 1989. Guidelines: How far can you go? Proceedings of a symposium. Ministry of Environ. Wildlife Working Report No. WR-39.

Ministry of Environ. and Parks. 1988. Rational for the wildlife scenario in the Williams Lake TSA long term yield analysis. Cariboo Region, 49 pp.

Ministry of Environ. 1989. Bulkley Valley sub-regional moose management plan. Summary Report. First draft.

Planning Phases Working Group. 1989. The Forest Service planning system. Ministry of For. Final Draft Report.

Williams, D., and Associates. 1989. The analysis framework for integrated resource management (AFIRM) basic concepts. Prepared for L. Dellert, Forest Resource Analysis Section, Ministry of For.

Williams, D., L. Dellert, and P. Bunnell. 1988. Proposed forest resource analysis system (FRAS). Problem analysis and system concepts. D.H. Williams & Associates, Ltd., Vancouver, B.C., Ministry of For., Inventory Branch, and Environ. and Social Systems Analysis, Ltd., Vancouver, B.C.

APPENDIX A

ACTION POINTS FROM TSA WORKSHOP, JUNE 24 - 25,1987

Province of British Columbia

Ministry of Environment and Parks

[redacted]

PLANNING AND ASSESSMENT BRANCH

MEMORANDUM

To: TSA Steering Committee: Date: 87-07-17

J. O'Riordan, Chairman
D. McDonald
J. H. C. Walker
D. W. Narver
P. M. Brady

Re: TSA Workshop Recommendations

An interministry Environment/Forests workshop on TSA planning was recently held in Kamloops, June 24-25. The workshop was attended by staff from Fish and Wildlife Habitat Protection, Water Management, and Forest Service planning staff from regions and headquarters. Draft workshop minutes are attached.

A major objective of the workshop was to develop action points for ensuring that integrated resource planning at the TSA level takes place. The recently signed Protocol Agreement is a good first step. The recommendations from the workshop elaborate on the basic principles of the Agreement. Here are some of the key points made at the workshop.

INTERMINISTRY COMMITTEE

It is recommended that a joint Forests/ Environment TSA Steering Committee and working committee representing districts, regions, and headquarters be formed. It is apparent that information is key in TSA planning, thus representation of Surveys and Resource Mapping and Forests Inventory on both committees is also recommended. The working committee should be co-chaired by managers in planning, and report to the inter-ministry Steering Committee. The co-chairmen (J. Dick, R. Addison) will select members of the working committee. The first task of the working committee is to ensure the action points of the workshop are implemented.

Assuming the inter-ministry steering and working committees are formed, workshop action points are categorized into issues that concern both Ministries (and th s should be addressed by these committees), and action points that concern Environment only. The proposed Environment representatives on the inter-ministry working committee could function as an internal working committee that also addresses the internal action points.

.../2

INTERMINISTRY ACTION POINTS (Forests and Environment)

1. Clarify participation in TSA planning process on the following:

   - MOEP representation on TSA steering and/or working committees. Representation is desired from the Victoria, Region and District levels.

   - What is the link of strategic TSA planning to operational planning? How should that link be made?

   - What issues should be strategically addressed at the TSA level (e.g. silviculture, access) and what issues are best dealt with at the operational level?

   - Environment's participation in important steps in TSA planning need to be formalized (e.g. by "signing-off" completed steps, by attending meeting with Chief Forester and regional Forests staff when planning options are reviewed).

   - Where major unresolved resource conflicts occur in the selection of a TSA planning options the role of ELUC or ELUTC in either choosing an option or handling an appeal of a selected option needs to be clarified.

   - When major changes in TSA plans occur due to unforeseen events (e.g. bark beetles), MOEP must be involved in the decisions. This involvement needs to be formalized.

2. Clarify technical matters in TSA planning including:

   - Review of Forest Service's Planning Manual dealing with TSA planning (Chapter 3).

   - Input into planning cell boundaries in important environment areas such as community watersheds or critical winter ranges.

   - Develop standardized methods and data inputs for specific MOEP issues that are acceptable for TSA planning. For wildlife, for example, do areas need to be delineated on a map or can important habitats simply be described and become Forests' responsibility to integrate into a TSA option?

   - Review of appropriate map scale for input into TSA planning. Is 1:250,000 or 1:500,000 scale maps showing important environment concerns good enough; is 1:20,000 required/preferred for some issues?

.../3

- Ensure map-related input by Environment in TSA planning is appropriately conveyed on forest cover maps as Environmentally Sensitive Areas (ESAs) for operational use.

3. Review scheduling of TSA planning to reflect MOEP's ability to respond.

4. Review existing staff/contract resources necessary to do integrated TSA planning. If deemed inadequate, develop supplemental joint budget submission, or determine if existing or future supplemental programs (eg. FRDA) could include some funding for improved integrated planning.

5. Encourage trial development of land use strategy (land use zoning) in TSA where regional Forests and Environment staff support concept. The advantages/disadvantages should be reviewed following completion of "test area" to determine if this should be formally linked to TSA planning.

6. Explore methods of involving the public in the integrated TSA planning process.

7. Develop method of monitoring/assessing success of TSA planning and choose an appropriate prototype TSA to test it.

8. Ensure forest cover data bases are integrated with digital topography generated from Environment's TRIM program.

INTERNAL ACTION POINTS (Environment)

1. Priorize TSAs and strategic issues in terms of potential impact to environmental management objectives.

2. Priorize major information gaps from (1) above, and recommend who should get this required information (e.g. Surveys and Resource Mapping Branch, wildlife or fisheries inventory sections) and when it is needed.

3. Priorize major issues where regional or subregional planning may be required before they can be strategically addressed for TSA planning.

4. Recommend new Environment policies that are needed to support efforts in TSA planning. For example, develop policies on habitat diversity, on wildlife requirements for old-growth forests, and on wilderness needed to meet fish and wildlife management objectives. These policies should be reviewed by the interministry committee to ensure that they are practical and realistic.

.../4

5. Develop quantitative (if possible) and/or qualitative production targets, including economic values, for environment resources that can be used to describe the various options in TSA planning.

   Suggest small working groups be formed for wildlife, fisheries and water respectively to determine the best approach. A "pilot" TSA should be used to show proposed approach.

   For example, for wildlife, a group with L. Bailey, R. Reid, and appropriate regional staff could indicate how the numbers of wildlife by species, amount of hunting and non-hunting wildlife use, and value of the wildlife resource would likely change under various options developed for a "pilot" TSA. The approach would be used/modified for other TSAs.

6. Encourage trial development of Geographic Information System (GIS) developed by Surveys and Resource Mapping Branch in Environment regional or subregional office(s). This will assist regional staff in TSA planning and in the general handling and review of habitat referrals. SRMB should be requested to help get this off-the-ground through training and development work. With TRIM and Landsat, capabilities for improved information analysis for TSA planning will vastly increase. We need to begin preparing for this now.

7. Fisheries, in cooperation with DFO, need to assess 2% reduction in operable land area developed in one study area to determine appropriateness to TSA planning. Wildlife and Water need to assess whether developing a similar approach is either possible or desirable.

As workshop organizers, please let us know if you have any questions on this. So as not to lose the momentum of the workshop, we suggest a Steering Committee meeting in the near future would be timely.

O R Travers

R. Travers	T. Vold	L. Bailey	G. Chislett
Fisheries	Wildlife	Planning & Assessment	Fisheries

c.c. C. G. Prouse
R. Morley
J. Dick

APPENDIX B

PLANNING WORKSHOP WORKBOOK CONTENTS

TSA PLANNING PACKAGE
BACKGROUND FOR THE LONG RANGE HABITAT PLANNING WORKSHOP
NOVEMBER 8, 1988 -- KAMLOOPS

TABLE OF CONTENTS

1. Revised Long Term Habitat Planning Workshop Agenda

2. Strategy for Wildlife Planning

3. The Coordination and Integration of Forestry and Wildlife Interests in B.C. -- Lynn D. Bailey

4. Forestry Planning Manual, Chapter 3 Resource Management Plans for TSA's

5. TSA Schedules -- Ray Travers

6. TSA Regional Planning Documents

   Williams Lake -- Rationale for the Wildlife Scenario in the Williams Lake TSA Long Term Yield Analysis, 1988.

   Okanagan -- Okanagan Timber Supply Area Integrated Resource Management Guidelines for Timber Harvesting, 1988.

   Kamloops -- Draft Interior Five-Year Plan Format, 1988.

   Fort St. John -- Draft Resource Management Plan for the Fort St. John Area.

   Kootenays -- to be distributed at the workshop in Kamloops, Nov. 1988.

   Prince George TSA Analysis -- R. Kot, memo.

APPENDIX C

LIST OF WORKSHOP PARTICIPANTS

VICTORIA
- Ray Travers
- Mike Fenger
- Andrew Harcombe
- Nancy Wilkin
- Sylvia von Schuckmann
- Tony Hamilton
- Ron Kot
- Dauna Walker
- Tom Chamberlin
- Ric Morley
- Bruce Pendergast

PRINCE GEORGE
- Dave King

PENTICTON
- Dave Jones

WILLIAMS LAKE
- Herb Langin
- Marty Beets
- Marcel Demers

CRANBROOK
- Rob Neil

SMITHERS
- Brian Fuhr

KAMLOOPS
Kathy Stuart
Phil Holman

FORT ST. JOHN
Brian Churchill

NELSON
Al Soobotin

INVERMERE
Dennis Hamilton

SURREY
Glen Carlson

NANAIMO
Ian McDougall

APPENDIX D

MINISTRY OF ENVIRONMENT SUB-REGIONAL STRATEGIC PLANS

Areas	
Elk-Flathead	wildlife and fisheries
Upper Columbia	wildlife and fisheries
Upper Kootenay	wildlife only
Nicola	minimal wildlife, mostly fisheries
Thompson-Bonapast	minimal wildlife, mostly fisheries
Finday-Omineca	wildlife and fisheries
Peace	wildlife and fisheries
Fraser-Delta	primarily water quality and fisheries, some wildlife
Cowichan-Kosilah	all fisheries
Oyster	all fisheries
Balfour-Brillant	wildlife and fisheries
Shuswap	primarily fisheries, some wildlife
Bulkley	all wildlife
Nechako	wildlife, separate water management plan with strong fisheries
Okanagan	primarily fisheries and water

More information about these plans is available from Assessment and Planning Branch, Ministry of Environment. Victoria, B.C.

Queen's Printer for British Columbia ©
Victoria, 1981

Wildlife Working Reports should not be cited because of the preliminary nature of the data they contain

WR-1 Progress report - coastal grizzly research project: Year 1. A.N. Hamilton. First printed October 1984, revised October 1986. 32pp. (Also printed as WHR-9).

WR-2 Progress report - year 2 - 1983, working plan - year 3 - 1984. Coastal grizzly research project. A.N. Hamilton and W.R. Archibald. First printed October 1984, revised October 1986. 32pp. (Also printed as WHR-10).

WR-3 Telemetry: comments and suggestions from the coastal grizzly project 1983. A.E. Derocher. October 1984. (Also printed as WHR-11).

WR-4 Habitat types of the Kimsquit River estuary. C. Clement. October 1984. 27pp. (Also printed as WHR-12).

WR-5 Biogeoclimatic units and ecosystem associations of the Kimsquit drainage. C. Clement. October 1984. 93pp. (Also printed as WHR-13).

WR-6 Kechika Enhancement Project of northeastern B.C.: wolf/ungulate management. 1983-84 annual report. J.P. Elliott. October 1984. 25pp.

WR-7 Muskwa Project working plan. J.P. Elliott. December 1984. 32pp.

WR-8 Muskwa Wolf Management Project of northeastern B.C. 1983-84 annual report. J.P. Elliott. December 1984. 23pp.

WR-9 Kechika Enhancement Project of northeastern B.C.. Revised working plan for 1984-87. J.P. Elliott. December 1984. 12pp.

WR-10 Home on the range: how to cook an urban goose. W.T. Munro, R.T. Sterling, and M.D. Noble. February 1985. 19pp.

WR-11 Effect of wolf control on black-tailed deer in the Nimpkish Valley on Vancouver Island. Progress report -1983 August 31 to 1984 August 31. K. Atkinson and D. Janz. March 1985. 22pp.

WR-12 1983 southeastern Skeena regional moose abundance and composition survey. B. van Drimmelen. June 1985. 47pp.

WR-13 Kechika Enhancement Project of northeastern B.C.: wolf/ungulate management. 1984-85 annual report. J.P. Elliott. September 1985. 28pp.

WR-14 Muskwa Wolf Management Project of northeastern B.C. 1984-85 annual report. J.P. Elliott. September 1985. 44pp.

WR-15 Caribou habitat use on the Level Mountain and Horseranch ranges, British Columbia. M.A. Fenger, D.S. Eastman, C.J. Clement, and R.E. Page. 1986. 41pp + 4 maps. (Also printed as Surveys and Resource Mapping Branch Working Report WR-8).

WR-16 Working plan - coastal grizzly research project. W.R. Archibald and A.N. Hamilton. October 1985. 27pp. (Also printed as WHR-21).

WR-17 Progress report - year 3 - 1984, working plan - year 4 - 1985. Coastal grizzly research project. W.R. Archibald, A.N. Hamilton, and E. Lofroth. October 1985. 65pp. (Also printed as WHR-22).

WR-18 Morice biophysical study, 93L/SW. B. Fuhr, M. Fenger, L. Lacelle, R. Marsh, and M. Rafiq. March 1986. 63pp + 9 maps.

WR-19 Effect of wolf control on black-tailed deer in the Nimpkish Valley on Vancouver Island. Progress report - 1984 August 31 to 1985 August 31. K. Atkinson and D.W. Janz. March 1986. 27pp.

WR-20 Kechika Enhancement Project of northeastern B.C.: wolf/ungulate management. 1985-86 annual report. J.P. Elliott. December 1986. 17pp.

WR-21 Muskwa Wolf Management Project of northeastern B.C. 1985-86 annual report. J.P. Elliott. December 1986. 15pp.

WR-22 Progress report - year 4 - 1985, working plan - year 5 - 1986. Coastal grizzly research project. A.N. Hamilton, W.R. Archibald, and E. Lofroth. February 1987. 90pp. (Also printed as WHR-26).

WR-23 Critical habitat of caribou (*Rangifer tarandus caribou*) in the mountains of southern British Columbia. K. Simpson, K. Hebert, and G.P. Woods. February 1987. 13pp.

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